Solid Earth

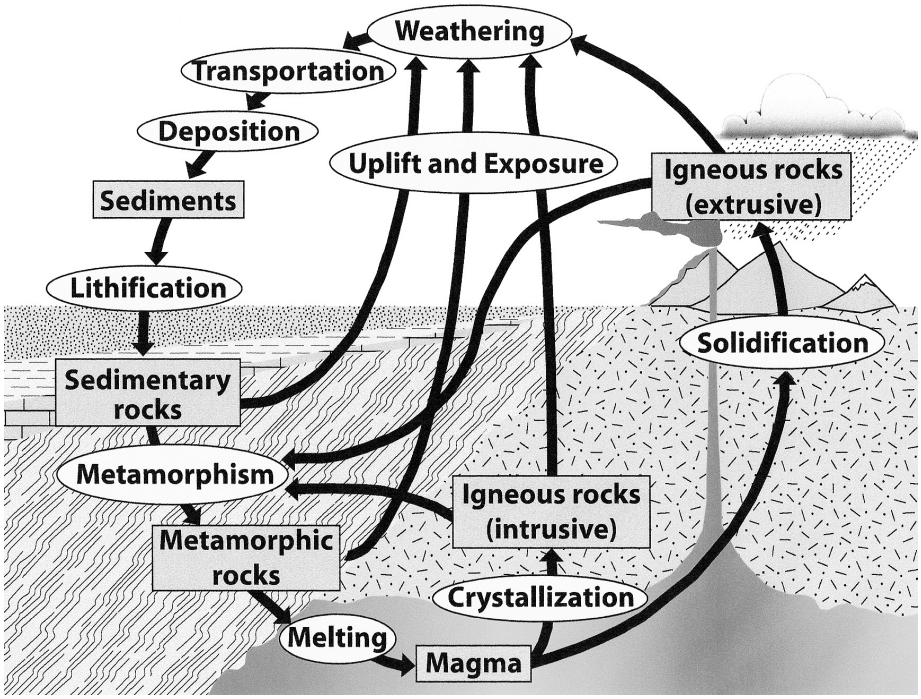
ES-3 The student will demonstrate an understanding of the internal and external dynamics of solid Earth.

ES-3.6 Explain how the dynamic nature of the rock cycle accounts for the interrelationships among igneous, sedimentary, and metamorphic rocks.
Taxonomy level: 2.7-B Understand Conceptual Knowledge

Previous/future knowledge: Students in 8th grade (8-3.4) explained how types of rocks were interrelated using the rock cycle. Students in Earth Science need to expand on the basic process to show interrelationships by the processes that act upon and within the planet.

It is essential for students to know that the rock cycle illustrates the continuous changing and remaking of rocks on Earth. The rocks of Earth, whether they are at the surface or below the crust, are always positioned somewhere on the rock cycle.

- The three types of rock – igneous, sedimentary, and metamorphic – are grouped according to how they form. These rock types form the divisions of the rock cycle.
- Processes can change any rock into another rock.
  - Internal processes include heat & pressure, melting, cooling & crystallization, and uplift.
  - External processes include weathering, erosion, deposition, burial, and lithification.



http://www.dnr.sc.gov/geology/images/rocks.pdf

Assessment Guidelines:
The objective of this indicator is to *explain* the dynamic nature of the rock cycle; therefore, the primary focus of assessment should be to construct cause and effect models of how surface and internal processes account for formation, change and reforming of rocks on Earth.
In addition to *explain* appropriate assessments may require students to:

- *compare* the processes that could form or change each type of rock;
- *recognize* internal and external processes that change rocks; *or*
- *identify* a type of rock by the process that formed it.